

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No. : 10/574,867 Confirmation No.: 5083
Applicant : Stefan Hein
Filed : April 6, 2006
TC/A.U. : 3753
Examiner : Jeremy S. Baskin

Docket No. : APP010 P307
Customer No. : 00277

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

**TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION - 37 C.F.R. §41.37)**

Dear Sir:

1. Transmitted herewith is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on January 4, 2010.

2. STATUS OF APPLICANT

This application is on behalf of other than a small entity.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 35 USC §41(a)(6), the fee for filing the Appeal Brief is \$540.00 for other than a small entity.

Appeal Brief Fee Due: \$540.00

4. EXTENSION OF TIME

The proceedings herein are for a patent application and the provisions of 35 USC §41(a)(8) apply.

(Complete (a) or (b) as applicable.)

(a) ☐ Applicant petitions for an extension of time under 37 C.F.R. §1.136:

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Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/> one month	\$130.00	\$65.00
<input type="checkbox"/> two months	\$490.00	\$245.00
<input type="checkbox"/> three months	\$1,110.00	\$555.00
<input type="checkbox"/> four months	\$1,730.00	\$865.00
<input type="checkbox"/> five months	\$2,350.00	\$1,175.00
		Fee Due: <u>0.00</u>

If an additional extension of time is required please consider this a petition therefor.

(Check and complete the next item, if applicable.)

- ☐ An extension for Choose an item has already been secured and the fee paid therefor of \$Type amount here is deducted from the total fee due for the total months of extension now requested.

Extension Fee Due With This Request: 0.00

or

- (b) ☒ Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal Brief fee: 540.00
Extension fee (if any): 0.00

TOTAL FEE DUE: \$540.00

6. FEE PAYMENT

- ☐ Attached is a check in the sum of \$0.00
- ☐ Charge Account No. 16-2463 the sum of \$0.00
A duplicate of this transmittal is attached.

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☒ Other: payment by credit card

7. FEE DEFICIENCY

☒ If any additional extension and/or fee is required charge Account No. 16-2463.

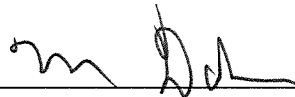
and/or

☒ If any additional fee for claims is required, charge Account No. 16-2463.

Respectfully submitted,

3/4/2010

Date



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APPEAL BRIEF (37 CFR §41.37)

This brief is in furtherance of the Notice of Appeal, with respect to the Notice of Appeal filed on January 4, 2010.

The fees required under 35 USC 41(a)(6), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains these items under the following headings, and in the order set forth below (37 CFR §41.37(c)):

- I. Real Party in Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds of Rejection to Be Reviewed on Appeal
- VII. Argument
- VIII. Conclusion

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Appendix of Claims Involved in the Appeal

Evidence Appendix

Related Proceedings Appendix

The final page of this brief bears the attorney's signature.

I. Real Party in Interest

The real party in interest in this application is Applied Materials GmbH & Co. KG, the assignment to which was recorded at Reel 019027, Frame 0872.

II. Related Appeals and Interferences

Appellants are aware of no other appeals or interferences that would directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III. Status of Claims

Claims 14-20 and 22-42 are pending in this application. Claims 1-13 and 21 have been canceled. In a response after final filed on January 4, 2010, the subject matter of claim 21 was added to claims 14 and 31 (along with deleting "vacuum tight" as discussed in more detail below) and claim 21 was cancelled. The status of this amendment is outlined below. The rejections of claims 14-20 and 22-42 are the subject of this appeal.

IV. Status of Amendments

On December 3, 2009, Appellants filed a response after final wherein the subject matter of claim 21 was added to claims 14 and 31 (along with deleting "vacuum tight" as discussed in more detail below) and claim 21 was cancelled. In an advisory action dated December 30, 2009, the Examiner indicated that these claim amendments have not been entered. During a telephone interview on January 4, 2010, the Examiner indicated that the amendment to the claims filed on December 30, 2009 would be entered if Appellants filed proceeded with an

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Appeal. Accordingly, on January 4, 2010, Appellants filed another copy of the amendments filed on December 30, 2009 (where the subject matter of claim 21 was added to claims 14 and 31 (along with deleting “vacuum tight” as discussed in more detail below) and claim 21 was cancelled). During a phone conversation with the Examiner on March 1, 2010, the Examiner indicated that the claim amendments would be entered and that an Advisory Action indicating the same would be forthcoming. As of the date of the filing of this Appeal Brief, the Advisory Action has not been received. However, since the Examiner has assured the Appellants that the amendments would be entered, Appellants are proceeding as if the amendments have been entered. Appellants note that the claims were previously rejected for including the term “vacuum tight.” However, this phrase was removed in the latest amendment such that the rejection of the claims as being indefinite is considered to be obviated and will not be addressed any further below.

V. Summary of Claimed Subject Matter

As described in the specification portion of the application (pages 1-6), and illustrated in the related figures (FIGS. 1-3), the invention recited in the finally rejected claims relates to an air-lock valve and a processing plant for traversing band-like substrates.

According to claim 14, an aspect of the present invention is to provide an air-lock valve 1 (page 4, line 40) comprising a housing 2 (page 4, line 40) having an opening 3 (page 4, line 41) configured to be traversed by a flexible band substrate 4 (page 4, line 41) and at least one moveable sealing body 7 (page 5, line 15) cooperating with a sealing surface 5 (page 5, line 6) of the housing 2 (page 4, line 40) for closing the opening 3 (page 4, line 41) during a closing phase of the air-lock valve 1 (page 4, line 40), with the band substrate 4 (page 4, line 41) being clamped between the at least one movable sealing body 7 (page 5, line 15) and the sealing surface 5 (page 5, line 6). The sealing surface 5 (page 5, line 6) surrounds the opening 3 (page 4, line 41), and the opening 3 (page 4, line 41) is closed by pressing the at least one movable sealing body 7 (page 5, line 15) upon the sealing surface 5 (page 5, line 6) and/or upon the band substrate 4 (page 4, line 41) traversing the opening 3 (page 4, line 41) such that

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the at least one movable sealing body 7 (page 5, line 15) closes the opening 3 (page 4, line 41) at least through indirect abutting at edges of the sealing surface 5 (page 5, line 6). The at least one movable sealing body 7 (page 5, line 15) and the sealing surface 5 (page 5, line 6) each have an arcuate contour and a radius of the sealing surface 5 (page 5, line 6) is larger or equal to the radius of the at least one movable sealing body 7 (page 5, line 15).

According to claim 23, another aspect of the present invention is to provide a processing plant for traversing band-like substrates 4 (page 4, line 41) comprising at least one evacuable processing chamber, at least another chamber associated with the at least one evacuable processing chamber for unrolling or winding up the band substrate 4 (page 4, line 41), with the chambers being interconnected through an opening 3 (page 4, line 41) through which the band substrate 4 (page 4, line 41) is guided, and at least one air-lock valve 1 (page 4, line 40) provided at the opening 3 (page 4, line 41). The at least one air-lock valve 1 (page 4, line 40) comprises a housing 2 (page 4, line 40) having the opening 3 (page 4, line 41) and at least one moveable sealing body 7 (page 5, line 15) cooperating with a sealing surface 5 (page 5, line 6) of the housing 2 (page 4, line 40) for closing the opening 3 (page 4, line 41) during a closing phase of the air-lock valve 1 (page 4, line 40), with the band substrate 4 (page 4, line 41) being clamped between the at least one movable sealing body 7 (page 5, line 15) and the sealing surface 5 (page 5, line 6). The sealing surface 5 (page 5, line 6) surrounds the opening 3 (page 4, line 41), and the opening 3 (page 4, line 41) is closed by pressing the at least one movable sealing body 7 (page 5, line 15) upon the sealing surface 5 (page 5, line 6) and/or upon the band substrate 4 (page 4, line 41) traversing the opening 3 (page 4, line 41) such that the at least one movable sealing body 7 (page 5, line 15) closes the opening 3 (page 4, line 41) at least through indirect abutting at edges of the sealing surface 5 (page 5, line 6). The at least one movable sealing body 7 (page 5, line 15) and the sealing surface 5 (page 5, line 6) each have an arcuate contour and a radius of the sealing surface 5 (page 5, line 6) is larger or equal to the radius of the at least one movable sealing body 7 (page 5, line 15).

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VI. Grounds of Rejection to Be Reviewed on Appeal

In the final rejection mailed September 3, 2009, claims 14, 15, 17-20, 22-24, 27-35, 39 and 40 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,351,348 to Dupuis. However, as outlined above, claim 21 was added to the only independent claims in the application, namely claims 14 and 31. Therefore, claim 14 as currently pending is identical to claim 21 as pending before the mailing of the final rejection. Accordingly, the rejection of claims 14, 15, 17-20, 22-24, 27-35, 39 and 40 as being anticipated by U.S. Patent No. 3,351,348 to Dupuis is now moot as claims 14 and 31 include the subject matter of claim 21, which was absent from claims 14 and 31 when the final rejection was mailed.

Claim 21 as pending before the mailing of the final rejection depended from claim 14 and was rejected under 35 U.S.C. §103(b) as being obvious over the Dupuis '348 patent in view of Patent No. 4,808,444 to Yamazaki et al. Since claims 14 and 31 now include the subject matter of claim 21, all claims (except for claim 25 discussed in more detail below) are treated herein as being rejected over a combination of the Dupuis '348 patent in view of U.S. Patent No. 4,808,444 to Yamazaki et al.

Claim 25 as pending before the mailing of the final rejection depended from claim 14 and was rejected under 35 U.S.C. §103(b) as being obvious over the Dupuis '348 patent in view of U.S. Patent No. 3,807,058 to Seminski. Accordingly, claim 25 is treated herein as being rejected over a combination of the Dupuis '348 patent in view of the Yamazaki et al. '444 patent and the Seminski '058 patent.

Therefore, the grounds of rejection to be reviewed upon appeal are as follows:

Claims 14-20, 22-24 and 26-42 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al.

Claim 25 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al. and U.S. Patent No. 3,807,058 to Seminski.

VII. Argument

A. Law of Obviousness

As further discussed below, Appellant respectfully submits that a *prima facie* case of obviousness has not been established. The test for obviousness has recently been addressed by the U.S. Supreme Court in *KSR Int'l. Co. v. Teleflex, Inc.*, 82 U.S.P.Q.2d 1385 (2007). In its decision, the Supreme Court stated that the teaching-suggestion-motivation (TSM) standard developed by the Federal Circuit was no longer the sole test for determining obviousness. Nevertheless, the Court indicated that the TSM test provides helpful insights as to the obviousness of the invention.

Furthermore, according to M.P.E.P. §2142:

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval).

Appellant submits that the Examiner has not clearly articulated the reasons why the claimed invention would have been obvious.

Moreover, while the U.S. Supreme Court held that the TSM standard was not the sole standard for finding obviousness, there is at least one element to the finding of a *prima facie* case of obviousness that is common to both the TSM standard and the standards that may otherwise fall within the purview of the *KSR* decision. Specifically, each and every element of

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the claimed invention must still be considered. As will be set forth below, there are elements of the claimed invention that are missing in their entirety from the cited prior art.

B. Rejection of Claims 14-20, 22-24 and 26-42 Under 35 U.S.C. §103(a) As Being Obvious Over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al.

Claims 14-20, 22-24 and 26-42 have been rejected under 35 U.S.C. §102(b) as being obvious over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al. Appellants note that hereinafter U.S. Patent No. 3,351,348 to Dupuis will just be referred to as “the Dupuis ‘348 patent” and that U.S. Patent No. 4,808,444 to Yamazaki et al. will just be referred to as “Yamazaki et al. ‘444 patent.” The Examiner has not created a prima facie case of obviousness to reject claims 14-20, 22-24 and 26-42.

Claims 14-20, 22-24, 26, 27, 37 and 41

Claim 14 defines an air-lock valve comprising a housing having an opening configured to be traversed by a flexible band substrate and at least one moveable sealing body cooperating with a sealing surface of the housing for closing the opening during a closing phase of the air-lock valve, with the band substrate being clamped between the at least one movable sealing body and the sealing surface. The sealing surface surrounds the opening and the opening is closed by pressing the at least one movable sealing body upon the sealing surface and/or upon the band substrate traversing the opening such that the at least one movable sealing body closes the opening at least through indirect abutting at edges of the sealing surface. The at least one movable sealing body and the sealing surface each have an arcuate contour. A radius of the sealing surface is larger or equal to the radius of the at least one movable sealing body.

The prior art of record does not obviate the above-noted features of claim 14. Specifically, the Dupuis ‘348 patent in view of the Yamazaki et al. ‘444 patent does not include at least one movable sealing body and a sealing surface that each have an arcuate contour and a radius of the sealing surface that is larger or equal to a radius of at least one movable sealing body, along with the remaining features of claim 14.

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The Dupuis '348 patent discloses a system for coating a pair of webs 38 and 39 as they pass through a vacuum metallization chamber 5. As illustrated in FIG. 1 of the Dupuis '348 patent, the webs 38 and 39 first travel through a sealing chamber 17 and then through the vacuum metallization chamber 5. The Dupuis '348 patent includes a sealing structure or sealing means 30 between the sealing chamber 17 and the vacuum metallization chamber 5. As illustrated in FIG. 2 of the Dupuis '348 patent, the sealing structure or sealing means 30 includes a sealing web 35 that rolls about two rollers 31 and 32. During use, the webs 38 and 39 roll about a bottom of the roller 32 and then pass through an opening 11 in a partition 6 between the sealing chamber 17 and the vacuum metallization chamber 5 to reach the vacuum metallization chamber 5. A first run 36 of the sealing web 35 is pushed against an exterior surface 16 of the partition 6 because the pressure in the sealing chamber 17 is greater than the pressure in the vacuum metallization chamber 5 (which is under vacuum). See lines 1-15 of column 4 of the Dupuis '348 patent. According to the Dupuis '348 patent, the pushing of the sealing web 35 against the exterior surface of the partition 6 is needed because "it is necessary and desirable to maintain an efficient seal between the web or strip as it enters an opening in one end of the chamber and is removed through an opening, generally at an opposite end of the chamber." Lines 35-39 of column 1 of the Dupuis '348 patent. As illustrated in FIG. 2, the rollers 31 and 32 are spaced from the partition 6 to allow the sealing web 35 and the webs 38 and 39 to pass between the rollers 31 and 32 and the partition 6. Since the first run 36 of the sealing web 35 is pushed against the exterior surface of the partition 6 as discussed above, the rollers 31 and 32 are spaced from the partition 6 because the first run 36 covers the opening 11 independent of the distance between the rollers 31 and 32 and the partition 6.

The Yamazaki et al. '444 patent discloses a method and apparatus for coating webs. The Yamazaki et al. '444 patent includes a web 3 that rolls about a roller 1 on a stand 5 movable on a slide rail 6. The web 3 is coated by moving the roller 1 and the stand 5 towards a coating head 12. The web 3 is first moved to a distance of 0.5 to 2.2 mm from a suction chamber 4 of the coating head 12. At this distance, the web is not coated by the coating head. The web 3 is thereafter moved to a distance of 0.2 to 0.4 mm in which the coating can be

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applied to the web. See lines 32-48 of column 4 of the Yamazaki et al. '444 patent.

As outlined above, the Dupuis '348 patent and the Yamazaki et al. '444 patent each provide substantially different manners of applying a coating to a web.

According to the Examiner, the Dupuis '348 patent does not include all of the subject matter of claim 14 because the Dupuis '348 patent does not disclose a movable sealing body and a sealing surface each having an arcuate contour as claimed in claim 14. However, according to the Examiner, "it would have obvious to one of ordinary skill in the art to replace the movable roller and sealing surface of Dupuis with the movable roller and sealing surface of Yamakazi so as to account for substrates of varying thicknesses and for the deposition of a desired material onto the substrate before it enters the vacuum chamber." Page 6 of the Office Action mailed September 3, 2009.

Appellants submit that it is not obvious to combine the Dupuis '348 patent and the Yamazaki et al. '444 patent as set forth by the Examiner.

First, the Dupuis '348 patent already accounts for substrates of varying thicknesses. Since the rollers 31 and 32 of the Dupuis '348 patent are spaced from the partition 6 and the pressure differential between the sealing chamber 17 and the vacuum metallization chamber 5 presses the first run 36 of the sealing web 35 (and thereby the webs 38 and 39) against an exterior surface 16 of the partition 6, the webs 38 and 39 (or substrates) can have any thickness.

Second, the Dupuis '348 patent teaches away from the combination of the references as set forth in the Office Action. If any movable roller and sealing surface of the Yamazaki et al. '444 patent was substituted for the seal structure or sealing means 30 and the exterior surface 16 of the partition 6, the resulting structure would not provide for a seal between the webs 38 and 39 as it enters the opening 11 of the vacuum metallization chamber 5 because the web 3 of the Yamazaki et al. '444 patent is always spaced from any surface.

Third, the Dupuis '348 patent teaches away from depositing any material onto the webs 38 and 39 before they enter the vacuum metallization chamber 5. Any such deposition of material onto the webs 38 and 39 directly before they enter the vacuum metallization chamber

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5 for coating would diminish any coating capabilities of the system within the vacuum metallization chamber 5.

Fourth, the system of the Yamazaki et al. '444 patent is unworkable in the system of the Dupuis '348 patent. The Yamazaki et al. '444 patent includes a system for coating an exterior surface of web in such a manner that the exterior surface of the web is not brought into contact with any other item after coating. However, if one was to use the system as set forth by the Examiner, the exterior surface of the web would abut the exterior surface 16 of the partition 6 right after any coating, thereby ruining the coating.

Fifth, the Yamazaki et al. '444 patent is substantially different than the system of the Dupuis '348 patent. In the combination as set forth by the Examiner, the Examiner removes the sealing means 30 of the Dupuis '348 patent and replaces the sealing means 30 with a portion of the Yamazaki et al. '444 patent. However, the Yamazaki et al. '444 patent does not disclose any sealing or different regions with different atmospheric pressures. In more detail, no sealing is provided between the backing roller 1 and the suction chamber 4. To the contrary, a clearance of 0.2 to 2.2 mm is provided between the web 3 and the suction chamber 4. Furthermore, the Yamazaki et al. '444 patent does not disclose traversing a web 3 through an opening within the suction chamber 4. Moreover, the suction chamber 4 of the Yamazaki et al. '444 patent has no sealing surface adapted to fit to a cylinder-like sealing body. The web is wrapped around the backing roller 1 and is not fed through the suction chamber 4.

Therefore, the Dupuis '348 patent teaches away from the modification of the references as set forth in the Office Action. Furthermore, Appellants submit that the Dupuis '348 patent and the Yamazaki et al. '444 patent are so different in structure and scheme that it clearly is not obvious to combine the references as set forth in the Office Action. Accordingly, claim 14 is in condition for allowance.

Claims 15-20, 22-24, 26, 27, 29, 37 and 41 depend from claim 14, and since claim 14 defines patentable subject matter as discussed above, claims 15-20, 22-24, 26, 27, 29, 37 and 41 define patentable subject matter. Accordingly, claims 15-20, 22-24, 26, 27, 29, 37 and 41 are in condition for allowance.

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Claims 28 and 29

Claim 28 depends from claim 14 and further states that the at least one movable sealing body is moved between an inactive and a closed position by a separate power drive.

Appellants submit that the above noted features of claim 28 (including the features of claim 14) are not disclosed by the cited art of record. First, claim 28 depends from claim 14, and since claim 14 defines patentable subject matter as discussed above, claim 28 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 28. While the Dupuis '348 patent discloses that the rollers 31 and 32 can be rotated by a drive mechanism, any such drive mechanism would not move the seal structure or sealing means 30 between an inactive and a closed position. Furthermore, the inert gas source is not a power drive. Finally, Appellant submits that it is not obvious to combine the references of record to result in any such power drive as it is not obvious to move any sealing body in the Dupuis '348 patent (even as modified) between an inactive and a closed position. Accordingly, Appellants submit that claim 28 is in condition for allowance.

Claim 29 depends from claim 28, and since claim 28 defines patentable subject matter as discussed above, claim 29 defines patentable subject matter. Accordingly, claims 28 and 29 are in condition for allowance.

Claim 30

Claim 30 depends from claim 14 and further states that the at least one movable sealing body is firmly tightened against the sealing surface with a predetermined bearing load by an accumulator. Appellants submit that the above noted features of claim 30 (including the features of claim 14) are not disclosed by the cited art of record. First, claim 30 depends from claim 14, and since claim 14 defines patentable subject matter as discussed above, claim 30 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 30. The cited art of record does not disclose at least one movable sealing body that is firmly tightened against a sealing surface with a predetermined bearing load by an accumulator. According to the Office Action, an accumulation of pressure firmly

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tightens a body against a sealing surface of the Dupuis '348 patent. However, an accumulation of pressure is not an accumulator. Accordingly, claim 30 is in condition for allowance.

Claim 39

Claim 39 depends from claim 14 and further states that the at least one movable sealing body closes the opening by abutting the sealing surface to wholly overlap the opening. Appellants submit that the above noted features of claim 39 (including the features of claim 14) are not disclosed by the cited art of record. First, claim 39 depends from claim 14, and since claim 14 defines patentable subject matter as discussed above, claim 39 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 39. The cited art of record, even as modified, does not disclose at least one movable sealing body that closes an opening by abutting a sealing surface to wholly overlap the opening. If the roller and surface of the Yamazaki et al. '444 patent are substituted for the sealing means 30 and the exterior surface of the partition 6 of the Dupuis '348 patent as set forth by the Examiner, any resulting sealing body would not wholly overlap the opening. Accordingly, claim 39 is in condition for allowance.

Claims 31-33, 36, 38 and 42

Claim 31 defines a processing plant for traversing band-like substrates comprising at least one evacuable processing chamber and at least another chamber associated with the at least one evacuable processing chamber for unrolling or winding up the band substrate. The chambers are interconnected through an opening through which the band substrate is guided and at least one air-lock valve provided at the opening. The at least one air-lock valve comprises a housing having the opening and at least one moveable sealing body cooperating with a sealing surface of the housing for closing the opening during a closing phase of the air-lock valve, with the band substrate being clamped between the at least one movable sealing body and the sealing surface. The sealing surface surrounds the opening and the opening is closed by pressing the at least one movable sealing body upon the sealing surface and/or upon

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the band substrate traversing the opening such that the at least one movable sealing body closes the opening at least through indirect abutting at edges of the sealing surface. The at least one movable sealing body and the sealing surface each have an arcuate contour. A radius of the sealing surface is larger or equal to the radius of the at least one movable sealing body.

The prior art of record does not obviate the above-noted features of claim 31. Specifically, as stated above in regard to claim 14, any combination of the Dupuis '348 patent in view of the Yamazaki et al. '444 patent does not include at least one movable sealing body and the sealing surface that each have an arcuate contour and a radius of a sealing surface that is larger or equal to a radius of at least one movable sealing body, along with the remaining features of claim 31. As stated above in regard to claim 14, the references teach away from any such combination and any combination of the references would not include these features. Accordingly, claim 31 is in condition for allowance.

Claims 32, 33, 36, 38 and 42 depend from claim 31, and since claim 31 defines patentable subject matter as discussed above, claims 32, 33, 36, 38 and 42 define patentable subject matter. Accordingly, claims 32, 33, 36, 38 and 42 are in condition for allowance.

Claim 34

Claim 34 depends from claim 31 and further states that the at least one movable sealing body is moved between an inactive and a closed position by a separate power drive.

Appellants submit that the above noted features of claim 34 (including the features of claim 31) are not disclosed by the cited art of record. First, claim 34 depends from claim 31, and since claim 31 defines patentable subject matter as discussed above, claim 34 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 34. While the Dupuis '348 patent discloses that the rollers 31 and 32 can be rotated by a drive mechanism, any such drive mechanism would not move the seal structure or sealing means 30 between an inactive and a closed position. Furthermore, the inert gas source is not a power drive. Finally, Appellant submits that it is not obvious to combine the references of record to result in any such power drive as it is not obvious to move any sealing

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body in the Dupuis '348 patent (even as modified) between an inactive and a closed position. Accordingly, claim 34 is in condition for allowance.

Claim 35

Claim 35 depends from claim 31 and further states that the at least one movable sealing body is firmly tightened against the sealing surface with a predetermined bearing load by an accumulator. Appellants submit that the above noted features of claim 35 (including the features of claim 31) are not disclosed by the cited art of record. First, claim 35 depends from claim 31, and since claim 31 defines patentable subject matter as discussed above, claim 35 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 35. The cited art of record does not disclose at least one movable sealing body that is firmly tightened against a sealing surface with a predetermined bearing load by an accumulator. According to the Office Action, an accumulation of pressure firmly tightens a body against a sealing surface of the Dupuis '348 patent. However, an accumulation of pressure is not an accumulator. Accordingly, claim 35 is in condition for allowance.

Claim 40

Claim 40 depends from claim 31 and further states that that the at least one movable sealing body closes the opening by abutting the sealing surface to wholly overlap the opening. Appellants submit that the above noted features of claim 40 (including the features of claim 31) are not disclosed by the cited art of record. First, claim 40 depends from claim 31, and since claim 31 defines patentable subject matter as discussed above, claim 40 defines patentable subject matter. Second, the references cited in the Office Action do not include the features of claim 40. The cited art of record, even as modified, does not disclose at least one movable sealing body that closes an opening by abutting a sealing surface to wholly overlap the opening. If the roller and surface of the Yamazaki et al. '444 patent are substituted for the sealing means 30 and the exterior surface of the partition 6 of the Dupuis '348 patent as set forth by the Examiner, any resulting sealing body would not wholly overlap the opening.

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Accordingly, claim 40 is in condition for allowance.

C. Rejection of Claim 25 Under 35 U.S.C. §103(a) As Being Obvious Over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al. and U.S. Patent No. 3,807,058 to Seminski


Claim 25 has been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 3,351,348 to Dupuis in view of U.S. Patent No. 4,808,444 to Yamazaki et al. and U.S. Patent No. 3,807,058 to Seminski. Claim 25 depends from claim 14, and since claim 14 defines patentable subject matter as discussed above, claim 25 defines patentable subject matter. Accordingly, claim 25 is in condition for allowance.

VIII. Conclusion

Each claim recites features that are not disclosed in any of the cited references and it would not have been obvious to modify the cited references to include the recited features of the appealed claims. The references upon which the Examiner relies in the Examiner's rejection of the claims does not disclose or make obvious an air-lock valve and a processing plant for traversing band-like substrates as claimed. Appellant's invention resolves problems and inconveniences experienced in the prior art, and therefore represents a significant advancement in the art. Appellant earnestly requests that the Examiner's rejection of claims 14-20 and 22-42 be reversed, and that the application be passed to allowance forthwith.

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Respectfully submitted,



3/4/2010

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Appendix of Claims (37 CFR §41.37(c))

14. An air-lock valve comprising:

at a housing having an opening configured to be traversed by a flexible band substrate;
and

at least one moveable sealing body cooperating with a sealing surface of the housing for closing the opening during a closing phase of the air-lock valve, with the band substrate being clamped between the at least one movable sealing body and the sealing surface;

wherein the sealing surface surrounds the opening, and the opening is closed by pressing the at least one movable sealing body upon the sealing surface and/or upon the band substrate traversing the opening such that the at least one movable sealing body closes the opening at least through indirect abutting at edges of the sealing surface; and

wherein the at least one movable sealing body and the sealing surface each have an arcuate contour and a radius of the sealing surface is larger or equal to the radius of the at least one movable sealing body.

15. The air-lock valve according to claim 14, wherein:

the band substrate may be forced through the at least one movable sealing body against a sealing edge of the opening at the sealing surface, such that, in the area of the sealing edge, a tangent of the at least one movable sealing body produces an obtuse angle towards the longitudinal or traversing direction of the band substrate.

16. The air-lock valve according to claim 15, wherein:

the at least one movable sealing body and the sealing surface each have an arcuate contour and a radius of the sealing surface is larger or equal to the radius of the at least one movable sealing body.

17. The air-lock valve according to claim 16, wherein:

the sealing surface and/or the at least one movable sealing body are provided with an

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elastically flexible surface material.

18. The air-lock valve according to claim 16, wherein:
the at least one movable sealing body comprises a cylindrical roll.
19. The air-lock valve according to claim 15, wherein:
the at least one movable sealing body comprises a cylindrical roll.
20. The air-lock valve according to claim 15, wherein:
the sealing surface and/or the at least one movable sealing body are provided with an elastically flexible surface material.
22. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body comprises a cylindrical roll.
23. The air-lock valve according to claim 22, wherein:
the sealing surface and/or the at least one movable sealing body are provided with an elastically flexible surface material.
24. The air-lock valve according to claim 14, wherein:
the sealing surface and/or the at least one movable sealing body are provided with an elastically flexible surface material.
25. The air-lock valve according to claim 14, wherein:
the sealing surface comprises a planar, flexible material, being tightly connected, with a wall section in frame-like fashion in an area of a circumferential border of the opening.

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26. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body is a single cylindrical roll configured to close the opening.
27. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body is rotably mounted.
28. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body is moved between an inactive and a closed position by a separate power drive.
29. The air-lock valve according to claim 28, wherein:
the separate power drive is provided at or inside the housing.
30. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body is firmly tightened against the sealing surface with a predetermined bearing load by an accumulator.
31. A processing plant for traversing band-like substrates comprising:
at least one evacuable processing chamber;
at least another chamber associated with the at least one evacuable processing chamber for unrolling or winding up the band substrate;
the chambers are interconnected through an opening through which the band substrate is guided; and
at least one air-lock valve provided at the opening;
the at least one air-lock valve comprising:
a housing having the opening; and
at least one moveable sealing body cooperating with a sealing surface of the housing for

closing the opening during a closing phase of the air-lock valve, with the band substrate being clamped between the at least one movable sealing body and the sealing surface;

wherein the sealing surface surrounds the opening, and the opening is closed by pressing the at least one movable sealing body upon the sealing surface and/or upon the band substrate traversing the opening such that the at least one movable sealing body closes the opening at least through indirect abutting at edges of the sealing surface; and

wherein the at least one movable sealing body and the sealing surface each have an arcuate contour and a radius of the sealing surface is larger or equal to the radius of the at least one movable sealing body.

32. The processing plant according to claim 31, wherein:

the at least one movable sealing body of at least one air-lock valve and the sealing surface are turned towards the at least another chamber to be occasionally ventilated.

33. The processing plant according to claim 31, wherein:

the at least one movable sealing body comprises a cylindrical roll.

34. The air-lock valve according to claim 31, wherein:

the at least one movable sealing body is moved between an inactive and a closed position by a separate power drive.

35. The air-lock valve according to claim 31, wherein:

the at least one movable sealing body is firmly tightened against the sealing surface with a predetermined bearing load by an accumulator.

36. The air-lock valve according to claim 31, wherein:

the at least one movable sealing body is a single cylindrical roll configured to close the opening.

37. The air-lock valve according to claim 14, wherein:
the sealing surface surrounding the opening is arcuate and the body is a cylindrical roll configured to engage the arcuate sealing surface.
38. The processing plant according to claim 31, wherein:
the sealing surface surrounding the opening is arcuate and the body is a cylindrical roll configured to engage the arcuate sealing surface.
39. The air-lock valve according to claim 14, wherein:
the at least one movable sealing body closes the opening by abutting the sealing surface to wholly overlap the opening.
40. The processing plant according to claim 31, wherein:
the at least one movable sealing body closes the opening by abutting the sealing surface to wholly overlap the opening.
41. The air-lock valve according to claim 28, wherein:
the at least one movable sealing body is spaced from the sealing surface and configured to be spaced from the flexible substrate when in the inactive position.
42. The air-lock valve according to claim 34, wherein:
the at least one movable sealing body is spaced from the sealing surface and configured to be spaced from the flexible substrate when in the inactive position.

Evidence Appendix (37 CFR §41.37(c))

There was no evidence submitted during this application under 37 CFR §1.130, 1.131 or 1.132 or any evidence entered by the Examiner and replied upon by Appellant in the appeal.

Related Proceedings Appendix (37 CFR §41.37(c))

There are no related appeals or interferences pending during this application.